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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,292	04/22/2004	Kunio Goto	12014-0017DV	7228
22902	7590	12/04/2007	EXAMINER	
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			STOUFFER, KELLY M	
			ART UNIT	PAPER NUMBER
			1792	
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			12/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/829,292	<b>Applicant(s)</b> GOTO, KUNIO	
	<b>Examiner</b> Kelly Stouffer	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 18, 19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 18, 19 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 12 October 2007 have been fully considered but they are not persuasive. The applicant argues that the amendments determine that the present invention is no longer obvious over Tsuru. However, Tsuru teaches, "The heating temperature may be arbitrarily determined in accordance with the properties of organic resin binder contained in the solid lubricant." Tsuru et al. also teaches "the method or condition of heating and baking is not limited to the specific example." Therefore it remains the Examiner's position that since multi-stage heating is a well known means for heating and curing coatings in the coating art that it would have been obvious for an engineer having ordinary skill in the art to have used multi-stage heating with the expectation of similar, successful results. The prior art references of Emch (US 6,579,575 and US 6,291,027) are cited to demonstrate the conventionality of using multi-stage heating processes for baking and curing organic coatings and to support this position of the examiner, and are not used to reject the claims. Emch shows that one of ordinary skill in the art, when baking and curing (i.e. drying) organic coatings has two options, to either heat all at once as Tsuru et al. shows, or use a multi-stage heating process. Therefore, using a multi-stage heating process would have been obvious because "a person of ordinary skill has good reason to pursue the known options with his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." See *KSR International Co. v.*

*Teleflex Inc.*, 550 U.S.--, 82 USPQ2d 1385 (2007). Further, as for the twenty minutes of heating, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the drying time at each temperature range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Further, Takamori et al. (US 6451515) teaches that when removing organic solvent in a film (such as the ketone solvent of Tsuru et al. as described below) one of ordinary skill in the art would desire a two stage heating process including the same temperature ranges as the instant application to promote gradually removing the organic solvent (column 14 lines 44-57). One of ordinary skill in the art would recognize that in gradually removing the solvent, damage and galling to the film would be prevented, and that the time of heating at each stage depends upon the speed of removing the solvent. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the drying time at each temperature range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955). Further, this technique for improving a particular class of methods (ie. solvent removal from a coating that would be useful in Tsuru et al. for preventing galling) was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the

technique for improvement in other situations (as shown in Takamori et al.). See *KSR International Co. v. Teleflex Inc.*, 550 U.S.--, 82 USPQ2d 1385 (2007).

Applicant also argues that the specification has comparative evidence showing that unexpected results are attained when practicing the invention as compared to a single-stage heating process. These showings are convincing that unexpected results are attained in using two heating steps in place of a single step, particularly Comparative Examples 1 and 2 and on page 26. However, the Examiner notes that the claims are not commensurate in scope with the showing. MPEP 716.02(d). Applicant claims use of *any* resin and a broad group of lubricating powder in claim 1 and a less broad group of powders and resins in the new dependant claims, however unexpected results were only demonstrated with use of MoS<sub>2</sub> lubricating powder and polyamideimide or epoxy resin. Further, there are many specific coating conditions in these examples and their corresponding tables that are not reflected in the claims. The claims should be narrowed to reflect the showing of results, or Applicant should provide scientific arguments on the record as to why *all* resins and this group of lubricating powders would achieve similar unexpected results. In the absence of such a showing of unexpected results *commensurate in scope with the claims*, the 35 USC 103(a) rejections are maintained for the reasons discussed above and in the prior Office actions.

New ground of rejection are presented below, necessitated by amendment.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 1-4, 6-7, 18-19 and 21-26 are rejected under 35 U.S.C. 103(a) as obvious over Tsuru et al. (US 6,027,145), or in the alternative, Tsuru et al. in view of Takamori et al. (US 6,451,515).

Tsuru et al. discloses a process for the surface treatment of a threaded joint for steel pipes comprising a pin and a box, each having a contact surface including a threaded portion and an unthreaded metal contact portion, comprising the steps of: roughening the surface of at least one of the pin and the box (Table 1 and column 23) applying a coating fluid containing a resin and a lubricating powder (a molybdenum disulfide or tungsten disulfide in col. 18, lines 60-63) in a solvent to the contact surface

of at least one of the pin and the box, and drying and baking the applied coating at a temperature in the range of 180-270 C (col. 21, lines 1-19).

The Examiner notes that it is well known in the coating art to heat coated substrates in stages in order to obtain more uniform heating of the coated substrate and more even solvent removal from the coating with an expected loss of efficiency in processing time. It is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have performed the heating and baking step in Tsuru et al.'s process by heating in two stages in order to improve heating and solvent removal efficiency. Tsuru teaches, "The heating temperature may be arbitrarily determined in accordance with the properties of organic resin binder contained in the solid lubricant." Tsuru et al. also teaches "the method or condition of heating and baking is not limited to the specific example." Since multi-stage heating is a well known means for heating and curing coatings in the coating art that it would have been obvious for an engineer having ordinary skill in the art to have used multi-stage heating with the expectation of similar, successful results. In addition, one of ordinary skill in the art, when baking and curing (ie. drying) organic coatings has two options, to either heat all at once as Tsuru et al. shows, or use a multi-stage heating process. Therefore, using a multi-stage heating process would have been obvious because "a person of ordinary skill has good reason to pursue the known options with his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." See *KSR International Co. v. Teleflex Inc.*, 550 U.S.--, 82 USPQ2d 1385 (2007). Further, as for the twenty minutes of heating, it would have been obvious

to a person having ordinary skill in the art at the time the invention was made to modify the drying time at each temperature range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Alternatively, Takamori et al. (US 6451515) teaches that when removing organic solvent in a film (such as the ketone solvent of Tsuru et al. in column 21 line 5) one of ordinary skill in the art would desire a two stage heating process including the same temperature ranges as the instant application to promote gradually removing the organic solvent (column 14 lines 44-57). One of ordinary skill in the art would recognize that in gradually removing the solvent, damage and galling to the film would be prevented, and that the time of heating at each stage depends upon the speed of removing the solvent. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the drying time at each temperature range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955). Further, this technique for improving a particular class of methods (ie. solvent removal from a coating that would be useful in Tsuru et al. for preventing galling) was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the



technique for improvement in other situations (as shown in Takamori et al.). See *KSR International Co. v. Teleflex Inc.*, 550 U.S.--, 82 USPQ2d 1385 (2007).

As to claim 2, Tsuru et al. teaches a preheating step in col. 21, lines 20-26 and Examples 5, 7, 15, and 16, etc.

As to claims 6-7 and 21-22, Tsuru et al. teaches that a manganese phosphate chemical formation coating layer is formed on the threaded joint, forming a contact surface to which the coating fluid is applied. Tsuru et al. teaches that the manganese phosphate chemical formation layer is porous (col. 15, lines 61-67), and the surface roughness of the phosphate chemical formation layer is in the range of 3-30  $\mu\text{m}$   $R_M$  (col. 13, lines 37-38).

As to claims 3-4 and 18-19, Tsuru et al. is silent with regard to the hardness and adhesive strength of the solid lubricant coating formed. However it is noted that Tsuru et al. teaches that a lubricant coating has excellent hardness and toughness and the adhesive property of it to the manganese phosphate chemical formation layer is very high (col. 21, lines 46-67). It is the Examiner's position that the hardness and adhesive strength of the layer would be within the claimed range since the coating materials and process steps of Tsuru et al. are materially similar to that claimed by Applicant. Any differences in properties between the claimed invention and that of Tsuru et al. must have been caused by process variables not claimed in the instant application.

As to claims 23-26, Tsuru et al. teaches some of the claimed resins in the abstract.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly Stouffer whose telephone number is (571) 272-2668. The examiner can normally be reached on Monday - Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

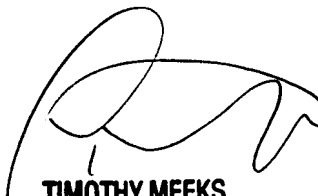
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Kelly Stouffer  
Examiner  
Art Unit 1792

kms



**TIMOTHY MEEKS**  
**SUPERVISORY PATENT EXAMINER**